

REMARKS

35 U.S.C. § 102

Claims 1 and 4-10 are rejected under 35 U.S.C. § 102(e) as being anticipated by Tokai et al. (US 6,566,199).

Claim 1 is amended to include features related to introducing the substrate into a holding device, and introducing the holding device into a heating device. In addition, claim 1 is amended to clarify that the process temperature is recorded by recording the temperature of the holding device.

The office action identifies reference 2 of Figure 1 of Tokai as a heating device into which a substrate is introduced. Tokai does not disclose introducing the substrate into a holding device and introducing the holding device in the heating device. In addition, Tokai does not disclose recording the process temperature by recording the temperature of the holding device itself. Tokai discloses optical sensors that directly measure the temperature of the wafer (See Tokai, col. 7, lines 37-48; col. 19, lines 42-46). Accordingly, Tokai does not disclose all the features of claim 1 and the claims that depend from claim 1.

The Applicant respectfully submits that Tokai does not disclose the features of claim 4. According to claim 4, the process temperature is between 350°C and 450°C. The office action points to Figure 1 of Tokai to disclose the features of claim 4. Figure 1 of Tokai does not provide any teaching or suggestion related to a process temperature. In Tokai, the film-forming temperature is between 800°C and 1100°C (See Tokai, col. 12, lines 5-7; col. 22, lines 33-34; Figs. 5-9). Accordingly, Tokai does not disclose all the features of claim 4.

The Applicant respectfully submits that Tokai does not disclose the features of claim 5. Claim 5 includes, *inter alia*, a preheating step in which the temperature in the heating device is held, for at least ten seconds, at a preheating temperature that is lower than the process temperature and higher than a condensation temperature of the oxidation gas, and where the oxidation gas begins to be admitted to the heating device before the preheating temperature is reached or at the preheating temperature. The

office action points to Figure 1 of Tokai to disclose these features. Figure 1 of Tokai shows a film-forming system; neither Figure 1 nor the disclosure of Tokai teaches or suggests the preheating features as claimed in claim 5.

The Applicant respectfully submits that Tokai does not disclose the features of claim 9. Claim 9 includes, *inter alia*, interrupting oxidation before a desired oxidation width is reached, recording the oxidation width, and performing post-oxidation of the layer as a function of the recorded oxidation width. These features allow accurate determination of parameters that are relevant for oxidation, such as the metal content of the layer or the actual starting size of the diaphragm to be produced, which may be used to adjust the process time for subsequent oxidation of the same oxide layer. This can provide increased accuracy in achieving the desired oxidation width (See Specification, p. 7, lines 17-30). The office action refers to Figure 1 of Tokai to disclose the features of claim 9. Neither Figure 1 nor the disclosure of Tokai disclose or suggest interrupting oxidation before a desired oxidation width is reached, recording the oxidation width, and performing post-oxidation as a function of the recorded oxidation width. Tokai does not disclose the features of claim 9.

For the foregoing reasons, the Applicant respectfully submits that Tokai does not anticipate claims 1 and 4-10 and thus requests withdrawal of the rejection of these claims under § 102(e).

35 U.S.C. § 103(a)

Claims 2, 3, 11, and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tokai (US 6,566,199) in view of Tsuya et al. (4,525,223).

Claims 2, 3, 11, and 12 each depend from claim 1. As asserted above, Tokai does not disclose all the features of claim 1, as amended. Tokai does not disclose introducing the substrate into a holding device, introducing the holding device in the heating device, or recording the process temperature by recording the temperature of the holding device. The addition of Tsuya does not cure this deficiency. The office action relies on Tsuya to disclose a gallium arsenide substrate, a holding device

containing graphite, a thermocouple, and a laser unit. Accordingly, claims 2, 3, 11, and 12 are not unpatentable over Tokai in view of Tsuya at least for the reasons stated above with respect to claim 1.

This Amendment cancels claim 3. New claims 18-20 include the subject matter of now cancelled claim 3. With respect to new claim 18, the Applicant respectfully submits that Tsuya does not disclose a holding device comprising a thermal conductivity at 20°C of more than $10 \text{ Wm}^{-1}\text{K}^{-1}$, where the thermal conductivity of the holding device at the process temperature is greater than a thermal conductivity of the substrate at the process temperature.

With respect to new claim 19, the office action acknowledges that Tokai does not disclose a holding device containing graphite. The Applicant respectfully submits that Tsuya does not disclose a holding device containing graphite. Tsuya discloses a graphite nozzle. The nozzle in Tsuya enables ejecting a melt of semiconductor material in order to form a wafer (See Tsuya, col. 9, line 52 – col. 10, line 7). The nozzle is not a holding device as claimed, nor does Tsuya disclose any other elements that disclose introducing the substrate into a holding device, introducing the holding device in the heating device, or recording the process temperature by recording the temperature of the holding device. Accordingly, Tsuya does not disclose a holding device containing graphite.

New claim 20 depends from claim 19 and shows that the holding device comprises at least 90% graphite. Support for this amendment may be found in the Specification at least at page 4, lines 8-9. As noted above, the combination of the Tokai and Tsuya does not disclose using a holding device as claimed, let alone a holding device comprising at least 90%, or any amount of graphite.

With respect to claim 11, the office action relies on Tsuya to disclose a thermocouple. According the claim 11, the temperature *of the holding device* is recorded using a pyrometer or using at least one thermocouple. For the reasons noted above, neither Tsuya, nor the combination of the Tokai and Tsuya, disclose recording the temperature of the holding device.

For the foregoing reasons, claims 2, 11, and 12, as well as new claims 18-20, are not unpatentable over Tokai in view of Tsuya. Accordingly, the Applicant respectfully requests withdrawal of the rejection under § 103(a).

Conclusion

The Applicant amends claims 1, 7, and 9, cancels claim 3, and adds new claims 18-20. The Applicant respectfully submits that the pending claims are in condition for allowance. The Examiner is respectfully requested to contact the undersigned in the event that a telephone interview would expedite consideration of the application.

Respectfully submitted,



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